Ontario Ministry of Agriculture and Food

2005 SUPPLEMENT

Fruit Production Recommendations

Publication 360S

April 2005

This supplement contains new product registrations for 2005. For complete information, please refer to the full edition of Publication 360, *Fruit Production Recommendations*, 2004–2005. This 9 page supplement can be downloaded at www.gov.on.ca/OMAFRA/english/crops/pub360/sup/p360stoc.htm. Printed copies are available from OMAF Resource Centers.

New Products	New Uses	
• Acramite 50 WS • Admire 240F • Intrepid 240F • 3M Sprayable Pheromone for mating disruption of oriental fruit moth	• Copper Spray • Maestro 80 DF • Ripcord 400 EC	• Sovran Fungicide • Supra Captan 80 WDG • Surround WP Crop Protectant • Thionex 50W

Changes to products

Chapter	Crop	Product	Change
Chapter 1	Table 1-4 Re-entry periods for pesticides used on fruit crops (pg. 6)	Sovran	Re-entry period reduced to 48 hours, from 7 days
Chapter 7	Apple (pg. 76, 77, 78, 84,87)		
Chapter 9	Grape (pg. 159, 160, 161, 162, 163)		

Deleted products and uses:

Product removed	Diseases and Insects	Timing
Chapter 7: Apple		
Cygon 480-Ag Lagon 480 E	Plant bugs	Tight cluster – pink (pg. 77)
	Rosy apple aphid	Pink (pg. 77) Petal fall (pg. 79) First summer spray (pg. 81)
	Apple maggot	Subsequent summer sprays (pg. 82)
	Green apple aphid Rosy apple aphid	Special summer sprays (pg. 82)
Cymbush 250 EC	Tentiform leafminer	Tight cluster to pink (pg. 76) Petal fall (pg. 79) Special summer sprays (pg. 83)
Chapter 7: Non-bearing Apple		
Cymbush 250 EC	Tentiform leafminer	Prebloom (pg. 85)
Cygon 480-Ag	Aphids	Summer sprays (pg. 85)
Chapter 8: Strawberry		
Cymbush 250 EC	Strawberry clipper weevil	As flower buds extend from the crown (pg. 143)
	Tarnished plant bug	First bloom (pg. 143) 7-10 days after bloom (pg. 144)
Chapter 9: Grape		
Cymbush 250 EC	Grape berry moth	Immediate prebloom (pg. 160) Berries pea-sized (pg. 162)
	Leafhoppers	Immediate post bloom to early fruit stage (pg. 161)
Chapter 10: Peach		
Cymbush 250 EC	Tarnished plant bug	Special sprays (early green fruit stage to pit hardening) (pg. 196)
	Oriental fruit moth	Second generation oriental fruit moth spray (pg. 196) Third generation oriental fruit moth spray (pg. 196) Prepick spray (pg. 197)
Chapter 10: Non-bearing peaches		
Cymbush 250 EC	Oriental fruit moth	First oriental fruit moth and borer spray (pg. 198) Second oriental fruit moth and borer spray (pg. 199) Third oriental fruit moth and borer spray (pg. 199)
Chapter 10: Pear		
Cymbush 250 EC	Pear psylla	First cover (pg. 204) Summer sprays (pg. 204)

Additions and new uses for 2005

Product to Add	Diseases and Insects	Timing	Rate	Comments
Chapter 7 - Apple				
Maestro 80 DF	Black rot	Pink (pg. 77) Bloom (pg. 78) Petal fall (pg. 78) First summer spray (pg. 80)	3.75 kg/ha	Do not use oil within 14 days of Captan or Maestro. Days to harvest interval = 7 days
Supra Captan 80 WDG	Black rot	Pink (pg.77) Bloom (pg. 78) Petal fall (pg. 78) First summer spray (pg. 80)	3.75 kg/ha	
Acramite 50WS	European red mite	Special summer sprays (pg. 84)	3 pouches/ 0.8 ha	Make no more than one application of Acramite 50WS per year. Not effective on rust mites. Days to harvest interval = 7 days Re-entry period = 12 hours 0.8 ha = 2 acres
	Two-spotted spider mite	Special summer sprays (pg. 84)	2 pouches/ 0.8 ha	
Intrepid 240F	Tentiform leafminer	Tight cluster to pink (pg. 76)	0.5 L/ha	Make no more than 2 applications of Intrepid 240F per year. Days to harvest interval = 14 days In most commercial orchards oblique-banded leafroller (OBLR) populations are resistant to organophosphate insecticides. Cross resistance to pyrethroids. Confirm and Intrepid has also been documented in some populations. In orchards where pesticide resistance is suspected, the use of insecticides to control OBLR should be restricted to *Bacillus thuringiensis (B.t.)* (Dipel, Foray or Bioprotect), or the naturolyte insecticde Success 480 SC.
	Oblique-banded leafroller	Petal fall (calyx) (pg. 80)	0.75 L/ha	
	Oriental fruit moth	Petal fall (calyx) (pg. 80) Subsequent summer sprays (pg. 82) Special summer sprays (pg. 83)	1L/ha	
	Codling moth	Subsequent summer sprays (pg. 82)	1L/ha	
Thionex 50W	Green apple aphid Rosy apple aphid	Special summer sprays (pg. 82)	4.5 kg/ha	Replaces Endosulfan 50 W Days to harvest interval = 15 days
	White apple leafhopper Potato leafhopper	Special summer sprays (pg. 83)	2.6 kg/ha	
Surround WP	Plum curculio	Petal fall (pg. 79) First summer spray (pg. 80)	50 kg/ha	Make 2 applications, 7 days apart, at 50 kg/ha, to establish a base layer. Continue applications at 7-14 day intervals, using a reduced rate of 25 kg/ha, to maintain even coverage of developing fruits. See *"Using Surround as a Pest Management Tool"* page 7.
Surround WP	Apple maggot	Subsequent summer sprays (pg. 82)	50 kg/ha	Begin Surround applications well before 1st AM flies are trapped in commercial orchards, and continue at 7-14 day intervals to maintain even coverage of fruit. Use 50 kg/ha for the first two applications of the season, continue at 25 kg/ha. See *"Using Surround as a Pest Management Tool"* page 7.

Product to Add	Diseases and Insects	Timing	Rate	Comments
Chapter 7: Apples, con't				
3M sprayable pheromone for OFM	Oriental fruit moth	Half-inch green to tight cluster (pg. 76) First summer spray (pg. 81) Subsequent summer sprays (pg. 82)	185 ml/ha	Make 1st application at full rate before OFM flight begins. Apply second spray 28-35 days after the first. See OMAF factsheet *Mating Disruption for Management of Oriental Fruit Moth in Stone and Pome Fruit* Agdex 624, Order # 04-029.
Chapter 7: Non-bearing apple				
Ripcord 400 EC	Leaf curling midge	After bloom (pg. 85) (new section)	250 ml/ha	Apply shortly after bloom in orchards where visible colonies occur.
Intrepid 240F	Tentiform leafminer	Prebloom (pg. 85)	0.5 L/ha	Make no more than 2 applications of Intrepid 240F per year.
Thionex 50W	Aphids	Summer sprays (pg. 85)	4.5 kg/ha	Replaces Endosulfan 50 W
	White apple leafhopper Potato leafhopper	Summer sprays (pg. 85)	2.6 kg/ha	
Acramite 50WS	Two-spotted spider mite	Summer sprays (pg. 85)	2 pouches/0.8 ha	Not effective on rust mite. Maximum 1 application/year. 0.8 ha = 2 acres
	European red mite	Summer sprays (pg. 85)	3 pouches/0.8 ha	
Chapter 8: Blueberry				
Admire 240F	Larvae of European chafer Larvae of Japanese beetle	Petal fall (pg. 123) Fruit ripening (pg. 123) After harvest (new section)	1.2 L/ha	Maximum 1application/year. Do not apply during bloom. Days to harvest interval = 14 days. Apply to damp soil around blueberry bushes and to grass covered areas in and around the blueberry field. Apply just prior to egg hatch of European chafer and Japanese beetle. Estimate egg hatch by monitoring for flight of adult beetles. Apply in 200 L water/ha. Irrigate 5-10 mm within 24 hours to move the product into the root zone, but avoid over watering.
Chapter 9: Grape				
Acramite 50WS	European red mite	Berry touch to cluster closure (pg. 163)	3 pouches/0.8 ha (2 acres)	Days to harvest interval = 14 days Re-entry period =12 hours except longer for certain tasks. See label. Maximum 1 application/year 0.8 ha = 2 acres
Chapter 10: Apricot				
Thionex 50W	Lesser peachtree borer Peachtree borer	Shuck fall (pg. 185)	1.5 kg/1000 L	Use pheromone traps to monitor adult activity and begin sprays at first flight. Make 3 applications at 5-10 day intervals. Direct the sprays with a spray gun to cover the trunk and scaffold limbs; do not spray fruit. Replaces Endosulfan 50 W Days to harvest interval = 15 days

Product to Add	Diseases and Insects	Timing	Rate	Comments
Chapter 10: Apricot con't				
3M sprayable pheromone for OFM	Oriental fruit moth	Second generation OFM, (around July 1) (pg. 186)	185 ml/ha	Make 1st application at the full rate before a given generation of OFM flight begins. Apply the second spray 28-35 days after the first. Mating disruption used in small blocks will only work if adjacent blocks are also treated. For small blocks of apricots, mating disruption should be used in conjunction with a full-orchard mating disruption program. See OMAF factsheet *Mating Disruption for Management of Oriental Fruit Moth in Stone and Pome Fruit* Agdex 624, Order # 04-029.
Chapter 10: Sour cherry				
Thionex 50W	Aphids	Special sprays (pg. 189)	3.25 kg/ha	Replaces Endosulfan 50 W Days to harvest interval = 15 days
Chapter 10: Sweet cherry				
Thionex 50W	Black cherry aphid	Petal fall (pg. 191)	4.5 kg/ha	Replaces Endosulfan 50 W Days to harvest interval = 15 days
Chapter 10: Peach				
Ripcord 400 EC	Tarnished plant bug	Special sprays (early green fruit to pit hardening) (pg. 196)	175 ml/ha	Days to harvest interval = 7 days Maximum 3 applications/season Ripcord also controls oak plant bug
	Oriental fruit moth	Second generation oriental fruit moth spray (pg. 196) Third generation oriental fruit moth spray (pg. 196) Prepick spray (pg. 197)	175 ml/ha	
Thionex 50W	Lesser peachtree borer Peachtree borer	First generation oriental fruit moth spray, shuck split (pg. 196)	1.5 kg/1000 L	Use pheromone traps to monitor adult activity and begin sprays at first flight. Make 3 applications at 5-10 day intervals. Direct the sprays with a gun to cover the trunk and scaffold limbs; do not spray fruit. Replaces Endosulfan 50 W Days to harvest interval = 15 days
3M sprayable pheromone for OFM	Oriental fruit moth	Second generation oriental fruit moth spray (pg.196) Third generation oriental fruit moth spray (pg. 196)	185 ml/ha	Make 1st application at the full rate before a given generation of OFM flight begins. Apply the second spray 28-35 days after the first. See OMAF factsheet *Mating Disruption for Management of Oriental Fruit Moth in Stone and Pome Fruit* Agdex 624, Order # 04-029.
Chapter 10: Non-bearing peaches				
Ripcord 400 EC	Oriental fruit moth	First, second, and third oriental fruit moth and borer spray (pg 198, 199)	175 ml/ha	Maximum 3 applications/season.
Thionex 50W	Lesser peachtree borer	First, second, and third oriental fruit moth and borer spray (pg 198,199)	1.5 kg/1000 L	Replaces Endosulfan 50 W
Chapter 10: Pear				
Ripcord 400 EC	Pear psylla	First cover (about June 25) (pg. 204) Summer sprays (pg. 204)	175 ml/ha	Maximum 2 applications/season. Days to harvest interval = 7 days

Product to Add	Diseases and Insects	Timing	Rate	Comments
Chapter 10: Pear con't				
Sovran Fungicide	Pear scab	Green tip (pg. 202) Prebloom (as blossoms show white at tips) (pg. 202) Petal fall (pg. 203) First cover (about June 25) (pg. 204) Second cover (pg. 205)	240 g/ha	Make a maximum of 2 sequential applications of Sovran, followed by two or more applications of a fungicide with a different mode of action. Where disease pressure is high, use up to 360 g/ha. Days to harvest interval = 30 days Re-entry period =48 hours (see label). Maximum 4 applications/season
Thionex 50W	Pear Psylla	Prebloom (pg. 202) Petal fall (pg. 203) First cover (pg. 204) Summer sprays (pg. 204)	6.75 kg/ha	Replaces Endosulfan 50 W Days to harvest interval = 15 days
	Plant bugs	Prebloom (pg. 203)	4.5 kg/ha	
Surround WP	Pear Psylla	Green tip (pg 202) Petal fall (pg 203) First cover (pg 204) Summer sprays (pg 204)	50.0 kg/ha	Begin spray applications before overwintering adults are active. Make 2 applications at 50kg/ha, 7 days apart, to establish a base layer. Continue applications at 7-14 day intervals. Surround may interfere with optimum bee activity. Do not apply Surround during the green cluster bud to petal fall stage. See "*Using Surround as a Pest Management Tool*" page 7.
3M sprayable pheromone for OFM	Oriental fruit moth	Second generation oriental fruit moth (around July 1) (new section, pg. 204)	185 ml/ha	Make 1st application at the full rate before a given generation of OFM flight begins. Apply the second spray 28-35 days after the first. Mating disruption used in small blocks will only work if adjacent blocks are also treated. For small blocks of pears, mating disruption should be used in conjunction with a full-orchard mating disruption program. See OMAF factsheet *Mating Disruption for Management of Oriental Fruit Moth in Stone and Pome Fruit* Agdex 624, Order # 04-029.
Chapter 10: Non-bearing pear				
Thionex 50W	Pear psylla	(pg 205)	1.5 kg/1000L	Replaces Endosulfan 50 W Days to harvest interval = 15 days
Chapter 10: Plum				
Thionex 50W	Aphids	Special sprays (pg 210)	3.25 kg/ha	Replaces Endosulfan 50 W Days to harvest interval = 15 days
	Peachtree borer Lesser peachtree borer	Special sprays (pg 210)	1.5 kg/1000L	
Chapter 11: Filbert, Hazelnut				
Copper Spray	Eastern filbert blight	Dormant (pg. 213)	3.0 kg/ha	Apply from bud swell to bud break, when tissue is susceptible to disease. Apply in 1000 L water/ha.
	Bacterial blight	Dormant (pg. 213) Post harvest (pg 213)	3 .0 kg/ ha	Apply prior to fall rains and again when 75% of leaves have fallen. Apply in 1000 L water/ha.

Surround ® WP Crop Protectant

Preventing Heat Stress on Young Apple and Pear Trees

Surround WP is comprised of highly refined kaolin clay. Once applied to the tree canopy it forms a uniform microscopic particle film that protects both leaves and fruit from various environmental effects including high UV light and heat. Excessive heat and high UV can slow the photosynthetic rate of a tree canopy during the heat of the day. As a result, untreated trees assimilate relatively less carbon under high stress.

The use of Surround WP on young apple and pear trees during the establishment period can provide several benefits to growth and development. The net accumulation of carbon from photosynthesis appears to be substantially greater for young trees treated with Surround during the summer months. Increases in trunk cross sectional area, shoot growth, fruit size and enhanced fruit bud initiation have been observed.

Trees treated with Surround have shown better foliage health through to leaf drop without interfering with the normal cycle of dormancy when compared to untreated trees. Improvements in fruit finish and recoverable yield from trees treated with a Surround program have been documented in Ontario on several cultivars.

To prevent heat stress on young trees, make 2 applications, 7 days apart, using 50 kg/ha. Begin spraying before heat stress is likely to occur. Continue applications at 7-14 day intervals, using a reduced rate of 25 kg/ha, to maintain even coverage.

Surround WP is made of an inert, non-reactive grade of kaolin that is not absorbed by plant tissues. The kaolin is food grade quality and approved by both the EPA and PMRA. Surround® WP is OMRI listed, highly refined and suitable for reduced risk programs.

Using Surround as a Pest Management Tool

Surround is a unique pest control product that is non-toxic to pests, beneficial insects and mites. Surround leaves a powdery white film on the surface of the leaves, stems and fruit of apple trees. This film acts as a physical barrier between the pest and its host plant. Insects that come in contact with Surround treated trees become agitated by tiny clay particles, and are repelled from the tree. The clay particles also coat the fruit, disorienting pests, and making the fruit unsuitable for feeding.

Good spray coverage is essential when using Surround. For good pest control the fruit must be completely covered with the product. Re-application may be necessary after heavy rainfall. For a season long pest management program using Surround, two applications of Surround (50 kg/ha) should be applied at 7-10 day intervals. Coverage should then be maintained by applying 25 kg/ha as necessary. Surround must be applied to the orchard prior to the appearance of pests to ensure crop protection.

Precautions When Using Surround

Do not mix Surround with spreaders, stickers or anti-foaming agents. Do not spray when bees are actively foraging. Do not re-enter the orchard for four hours after application.

In orchards treated with Surround, monitor fruit maturity carefully using starch iodine tests during the last 2 weeks of crop development.

For detailed application instructions, see the product label.

Azinphos-methyl (Guthion, Sniper) Re-entry Intervals and Buffer Zones

On March 29, 2004, the Pest Management Regulatory Agency (PMRA) released Re-evaluation Decision Document RRD2004-05. According to that document, "all uses of azinphos-methyl are to be phased out". During the phase out period, some changes to re-entry intervals and buffer zones are required. The re-evaluation decision document can be viewed in its entirety at: http://www.hc-sc.gc.ca/pmra-arla/english/pdf/rrd/rrd2004-05-e.pdf. These changes were effective August 31, 2004.

Last date for use of product	Registered Crops during "phase out period"	Comments
Dec 31, 2005	alfalfa, clover, rye, quince, potatoes, tomatoes, rutabagas, turnips, cabbages (including tight heading varieties of Chinese cabbage), broccoli, Brussels sprouts, cauliflowers, cucumbers, strawberries, boysenberries, loganberries, walnuts, melons, pumpkins, blueberries, outdoor ornamentals, nursery plants, forest trees and shade trees	
Dec 31, 2006	apples, crab apples, apricots, blackberries, cherries, cranberries, grapes, pears, peaches, plums, prunes, raspberries	All product must be re-labelled to reflect the changes to re-entry, buffer zones, below.

Worker re-entry: Do not enter or allow worker entry into treated areas during the re-entry interval (REI) listed in the chart below.

Crop	REI	
apple, plum ,prune, pear, apricot, peach	14 days	The following protective equipment is required for early entry to treated areas that involves contact with anything that has been treated, such as plants, soil or water. • Chemical-resistant coveralls over long-sleeved shirt and long pants • Chemical-resistant gloves • Chemical-resistant footwear plus socks • Protective eyewear • Chemical-resistant headgear for overhead exposure Following the REI and throughout the remainder of the growing season, workers must wear clean, long-sleeved shirts and protective gloves each time they perform activities that involve foliar contact. Notify workers of the pesticide application by warning them verbally and by posting warning signs at entrances to treated areas. Wash stations must be available in the field for all re-entry workers. Do not apply this product in a way that will come into contact with workers or other persons, either directly or through drift. Only protected handlers may be in the area during application.
raspberry, cranberry, blackberry	7 days	
cherry (sweet and tart)	15 days	
grape	28 days	

Re-entry for general public: Persons other than agricultural workers, such as members of the general public involved in "Pick-your-own", "U-pick" or similar operations are not permitted to enter a treated area for 30 days after application.

The PMRA has revised the buffer zones for azinphos-methyl :

Method of application	Buffer zone (metres) required for the protection of aquatic habitat with water depth of:		
	< 1 metre	1–3 metres	> 3 metres
Field sprayer*	50	40	30
Airblast (early season)	75	60	50
Airblast (late season)	65	50	40

* With the use of shrouds or cones on field sprayers (for reducing drift), buffer zones can be reduced by 70% (shrouds) or 30% (cones).

Recycle old editions of this publication. Each year the appropriate working group of the Ontario Pest Management Research and Services Committee reviews the pesticides listed in this publication. To the best knowledge of the committee, at the time of printing, all of these pesticides were:

- federally registered
- reviewed by the Ontario Pesticides Advisory Committee
- classified by the Ministry of the Environment as of April 2005.

The information in this publication is general information only. By printing this publication, the Ministry of Agriculture and Food does not offer any warranty or guarantee, nor does it assume any liability for any crop loss, animal loss, health, safety or environmental hazard caused by the use of a pesticide mentioned in this publication.

The pesticide product label is a legal document. It is against the law to use the product in any other way. You must also use all pesticides in accordance with the *Pesticides Act* and Regulation 914, administered by the Ontario Ministry of the Environment.

This publication lists a number of brand names of pesticides. This is for your convenience only. It is neither an endorsement of the product nor a suggestion that similar products are ineffective.

Consult each product label for specific information such as how to use the product safely, hazards, restrictions on use, compatibility with other products, and the effect of environmental conditions. Weather and other factors can influence the effectiveness of pesticides and the likelihood of crop injury.

Federal Registration of Pesticide Products

The Pest Management Regulatory Agency (PMRA) of Health Canada grants registration of pesticide products for use in Canada based on evaluation of scientific data to ensure that the product has merit and value; and the human health and environmental risks associated with its proposed use are acceptable.

- **Full Registration:** Pesticide registrations are normally granted for a period of five years, subject to renewal.
- **Temporary Registration :** Temporary registration may be granted for a period not to exceed one year, where the registrant agrees to produce additional scientific or technical information, or the pesticide is used for emergency control of a serious pest outbreak.

Maximum Residue Limits

Health Canada has established maximum residue limits (MRLs) for pesticides. Processors or retailers may demand more restrictive limits. Growers should seek advice of their intended market as to which restrictions or limitations apply. Keep accurate and up-to-date records on pesticide use in each crop.

Supplemental Labels

You MUST obtain a supplemental label and follow all the label directions when PMRA approves new uses for a registered pesticide that do not appear on the current label. Examples of when you must use a supplemental label include:

- **Temporary Registrations for Emergency Use**
- **Minor Use Label Expansion** (new label statements for crops that do not already appear on that product label)

You can obtain a copy of a supplemental label from the pesticide manufacturer or pesticide vendor, the grower association that sponsored the emergency registration or minor use, from OMAF or PMRA's Pest Management Information Service.

For more information on the federal registration status check the PMRA web site at www.hc-sc.gc.ca/pmra-arla or call **1-800-267-6315**.

Regulation of Pesticides in Ontario

The Ministry of the Environment is responsible for regulating pesticide sale, use, transportation, storage and disposal in Ontario. Ontario regulates pesticides by placing appropriate education, licensing and/or permit requirements on their use, under the Pesticides Act and Regulation 914.
All pesticides must be used in accordance with requirements under the Pesticides Act and Regulation 914. The Act and regulation are available on the e-laws web site at www.e-laws.gov.on.ca or call Publications Ontario toll free number: 1-800-668-9938 or 416-326-5300.

Classification of Pesticides into "Schedules"

The Ontario Pesticides Advisory Committee (OPAC) is responsible for reviewing and recommending to the Ministry of the Environment, the placement of pesticide products into one of six schedules used to control sale and use. Once approved by the Ministry of the Environment, classified products are posted on the OPAC web site: www.opac.gov.on.ca. For more information call OPAC at (416) 314-9230.

Licensing and Certification Requirements

You must be a certified grower or licensed exterminator to buy and use Schedule 1, 2 and 5 pesticides.

Requirements for Growers and Their Assistants

For information about certification for growers and training for assistants refer to Chapter 1 of OMAF publication 360, *Fruit Production Recommendations 2004-2005* or check the Ontario Pesticide Education Program Web site at www.ridgetownc.uoguelph.ca/opep or call **1-800-652-8573.**

Requirements for Commercial Applicators and Their Assistants

For information about exterminator certification and licensing and technician training refer to Chapter 1 of OMAF publication 360, *Fruit Production Recommendations 2004-2005* or check the Ontario Pesticide Training and Certification Web site at www.ridgetownc.uoguelph.ca/optc or call 1-888-620-9999.